

(12) **United States Patent**
Stewart et al.

(10) **Patent No.:** **US 9,210,151 B1**
(45) **Date of Patent:** ***Dec. 8, 2015**

(54) **METHOD, SYSTEM AND COMPUTER PROGRAM PRODUCT FOR THE AUTHENTICATION OF MULTIPLE USERS IN A COMMON SESSION**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 11 days.
This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/102,036**

(22) Filed: **Dec. 10, 2013**

Related U.S. Application Data

(63) Continuation of application No. 13/412,811, filed on Mar. 6, 2012, now Pat. No. 8,607,060, which is a continuation of application No. 10/892,296, filed on Jul. 15, 2004, now Pat. No. 8,132,016.

(60) Provisional application No. 60/488,011, filed on Jul. 17, 2003.

(51) **Int. Cl.**
G06F 7/04 (2006.01)
H04L 29/06 (2006.01)

(52) **U.S. Cl.**
CPC **H04L 63/08** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,976,164 B1 * 12/2005 King et al. 713/156

* cited by examiner

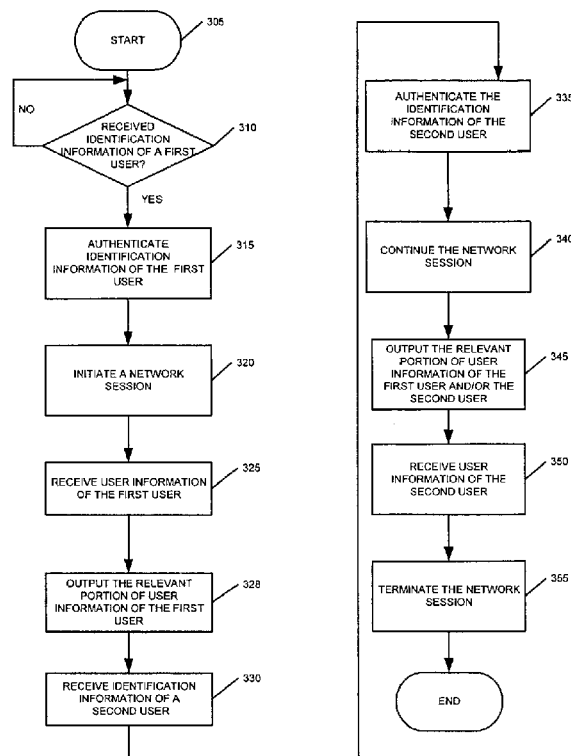
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(57) **ABSTRACT**

A first information handling system O("IHS") receives identification information of a first user of a second IHS. The first IHS initiates a network session in response to authenticating the identification information of the first user. Within the network session, the first IHS receives identification information of a second user of the second IHS. The first IHS authenticates the identification information of the second user.

19 Claims, 3 Drawing Sheets



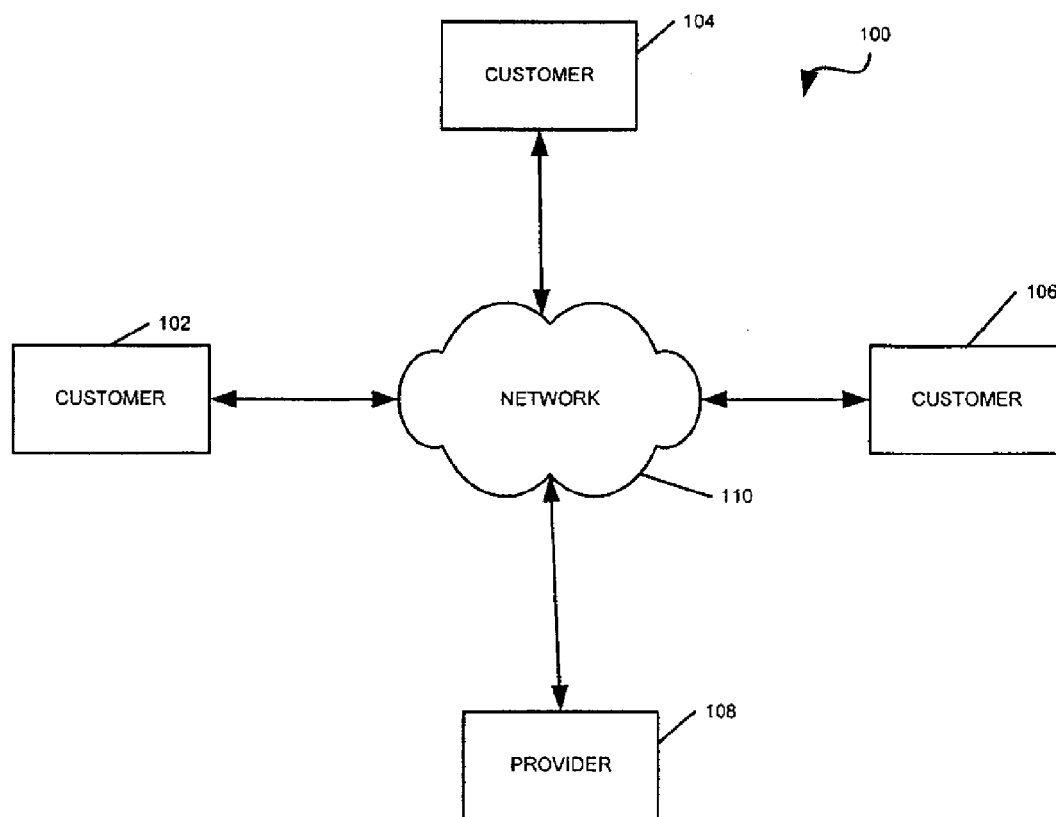


Fig. 1

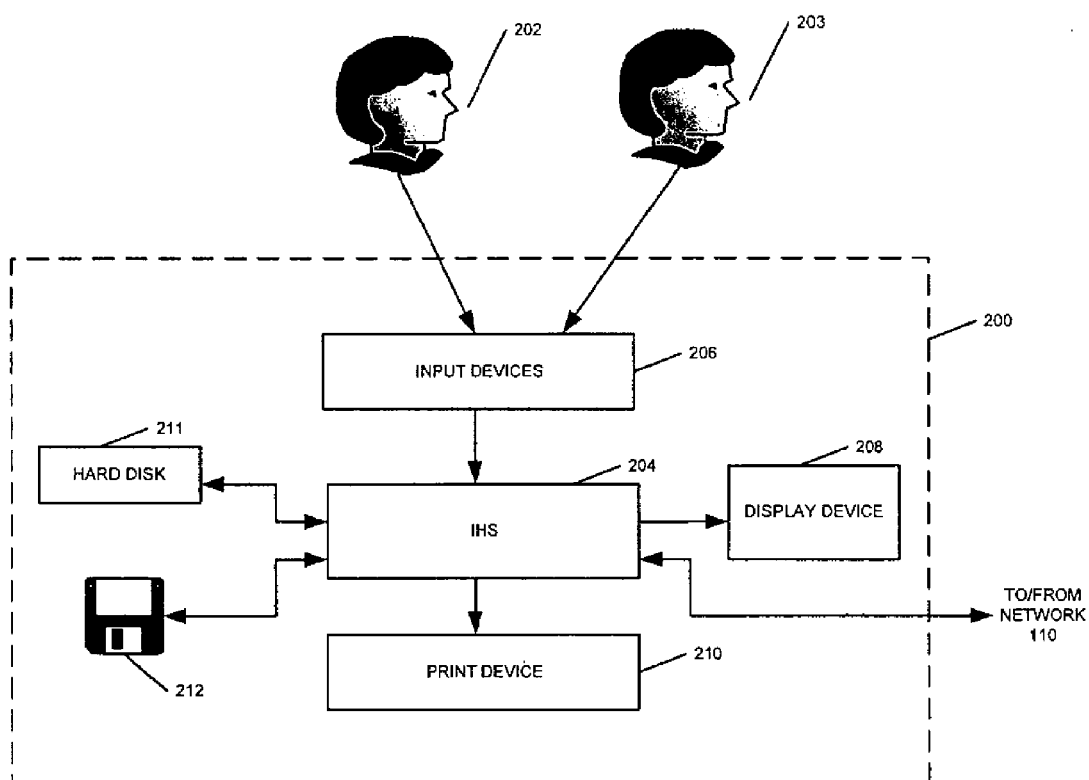


Fig. 2

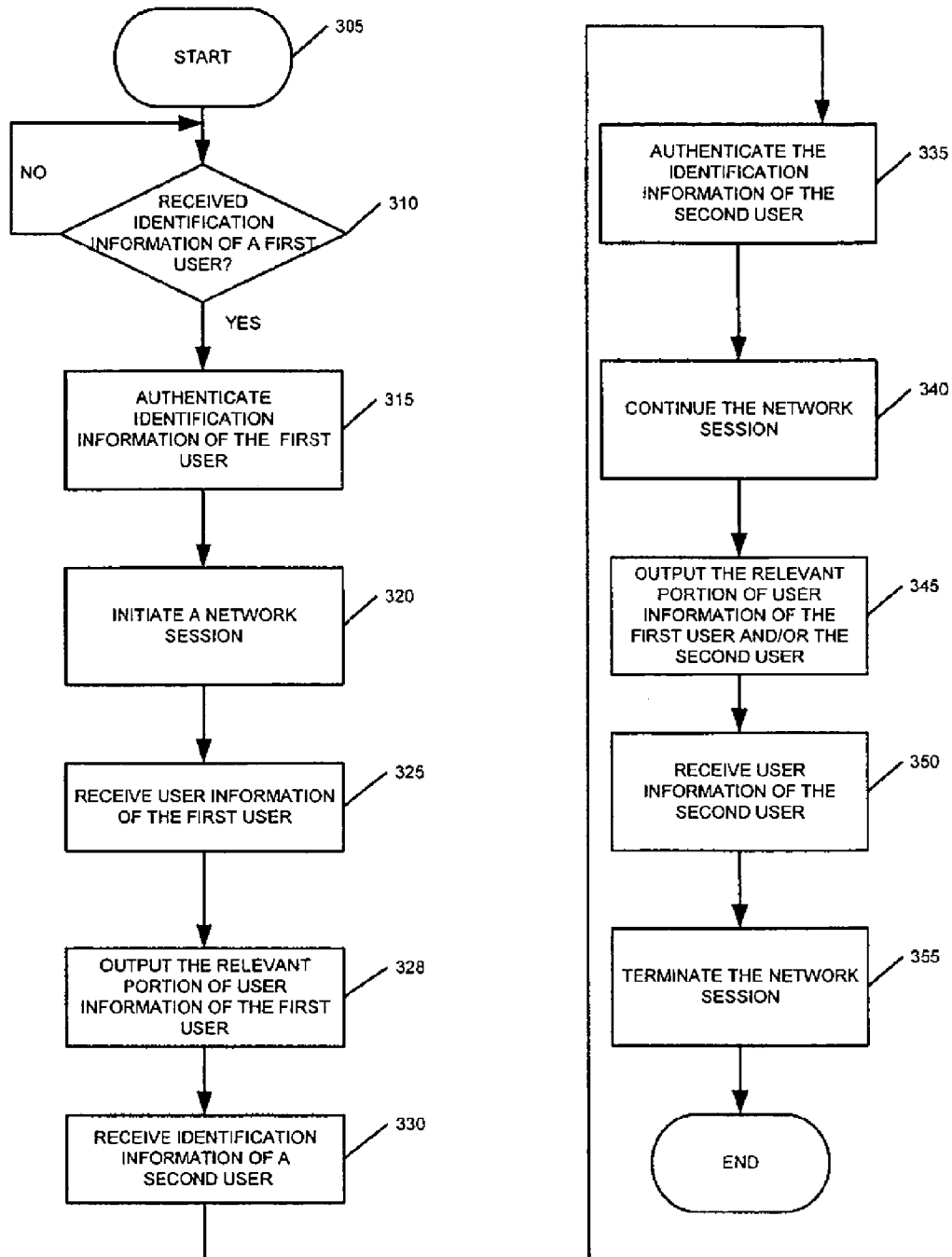


Fig. 3

METHOD, SYSTEM AND COMPUTER PROGRAM PRODUCT FOR THE AUTHENTICATION OF MULTIPLE USERS IN A COMMON SESSION

CLAIM TO EARLIER APPLICATIONS

This application is a continuation of U.S. patent application Ser. No. 13/412,811, filed Mar. 6, 2012, now U.S. Pat. No. 8,607,060, which is a continuation of U.S. patent application Ser. No. 10/892,296, filed Jul. 15, 2004, now U.S. Pat. No. 8,132,016, and claims priority to co-assigned U.S. Provisional Patent Application No. 60/488,011, filed Jul. 17, 2003, entitled SPOUSE AUTHENTICATION, naming Stewart, et al. as inventors, which is incorporated by reference in its entirety.

BACKGROUND

This description relates in general to information handling systems ("IHS") and in particular to a method, system, and computer program product for the authentication of multiple users in a common session.

In a transaction conducted via a network (e.g., the Internet), a provider of a product or service may authenticate a customer's identification information (e.g., user name and/or password) and in response, initiate a network session (e.g., hypertext transfer protocol ("HTTP") session) for receiving information from the customer. In some instances, a provider may receive information from multiple customers in connection with one or more transactions. For example, a provider of insurance may sell one or more insurance policies to a husband and a wife (e.g., jointly or separately). In doing so, the provider receives information from both the husband and the wife in connection with sale of the insurance policy (or policies). Such information may be transmitted through a request form (e.g., an "online" application form).

With an existing technique, the provider separately authenticates the husband's identification information and the wife's identification information, and in response to each authentication, initiates a separate network session for each respective authentication. Such technique causes various problems including inefficiency associated with initiating multiple sessions.

What is needed is a technique without the disadvantages described above.

SUMMARY

Accordingly, a first information handling system ("IHS") receives identification information of a first user of a second IHS. The first IHS initiates a network session in response to authenticating the identification information of the first user. Within the network session, the first IHS receives identification information of a second user of the second IHS. The first IHS authenticates the identification information of the second user.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a block diagram of a system according to the illustrative embodiment.

FIG. 2 is a block diagram of a representative information handling system ("IHS") of FIG. 1.

FIG. 3 is a flow chart of operations of a process executed by an IHS of FIG. 1.

DETAILED DESCRIPTION

FIG. 1 is a block diagram of a system, indicated generally at **100** according to the illustrative embodiment. The system **100** includes: (a) customers **102**, **104**, and **106** and (b) provider **108**, for executing provider processes as discussed further below in connection with FIG. 3. The system **100** also includes a global computer network **110**, such as a Transport Control Protocol/Internet Protocol ("TCP/IP") network (e.g., the Internet or an intranet).

Each of the customers **102**, **104**, and **106**, and the provider **108** includes a respective network interface for communicating with the network **110** (e.g., outputting information to and, and receiving information from, the network **110**), such as by transferring information (e.g., instructions, data, signals) between such customer and the network **110**. Accordingly, through the network **110**, the provider **108** communicates with the customers **102**, **104**, and **106**, and vice versa.

For clarity, FIG. 1 depicts only three customers **102**, **104**, and **106** although the system **100** may include additional customers which are substantially identical to one another. Likewise, for clarity, FIG. 1 depicts only one provider **108**, although the system **100** may include additional providers which are substantially identical to one another. In the discussion below, the customer **102** is a representative one of the customers **102**, **104**, and **106**.

Each of the customers **102**, **104**, and **106**, the provider **108**, and the network **110** is a computing system, and includes a respective information handling system ("IHS") for executing processes and performing operations (e.g., processing and communicating information) in response thereto, as discussed further below in connection with FIG. 3. Each such IHS is formed by various electronic circuitry components. Moreover, as shown in FIG. 1, all such IHS's are coupled to one another. Accordingly, the customers **102**, **104**, and **106**, and the providers **108** operate within the network **110**. IHS's include personal computers ("PC"), personal digital assistants ("PDA"), portable computers (e.g., "laptop" computers), wireless devices, mainframe computers and any other system capable of handling (e.g., processing, receiving, outputting) information.

In FIG. 1, the provider **108** includes a provider of products and/or services (e.g., provider of products and/or services via the Internet). For example, the provider **108** includes a provider of insurances (e.g., personal insurance, automobile insurance, and home owner's insurance), provider of financial services (e.g., loans or financial accounts), provider of annuities and/or any other provider of products and/or services. FIG. 2 is a block diagram of a representative one of the computing systems of FIG. 1. Such representative computing system is indicated by a dashed enclosure **200**. In the illustrative embodiment, each computing system of FIG. 1 operates in association with one or more respective human users. Accordingly, in the example of FIG. 2, the computing system **200** operates in association with human users **202** and **203**, as discussed further below.

As shown in FIG. 2, the computing system **200** includes (a) an IHS **204** for executing and otherwise processing instructions, (b) input devices **206** for receiving information from human users **202** and **203**, (c) a display device **208** (e.g., a conventional electronic cathode ray tube ("CRT") device) for displaying information to users **202** and **203**, (d) a print device **210** (e.g., a conventional electronic printer or plotter) for printing visual images (e.g., textual and graphic information) on paper, (e) a nonvolatile storage device **211** (e.g., a hard disk drive or other computer-readable medium (or apparatus), as discussed further below) for storing information, (f) a com-

puter-readable medium (or apparatus) **212** (e.g., a portable floppy diskette) for storing information, and (g) various other electronic Circuitry for performing other operations of the computing system **200**.

For example, the IHS **204** includes (a) a network interface (e.g., circuitry) for communicating between the IHS **204** and the network **110** and (b) a memory device (e.g., random access memory (“RAM”) device and read only memory (“ROM”) device) for storing information (e.g., instructions executed by IHS **204** and data operated upon by IHS **204** in response to such instructions). Accordingly, the IHS **204** is connected to the network **110**, the input devices **206**, the display device **208**, the print device **210**, the storage device **211**, and the computer-readable medium **212**, as shown in FIG. **2**. For example, in response to signals from the IHS **204**, the display device **208** displays visual images, and the users **202** and **203** view such visual images. Moreover, the users **202** and **203** operate the input devices **206** in order to input information to the IHS **204**, and the IHS **204** receives such information from the input devices **206**. Also, in response to signals from the IHS **204**, the print device **210** prints visual images on paper, and the users **202** and **203** view such visual images.

The input devices **206** include, for example, a conventional electronic keyboard and a pointing device such as a conventional electronic “mouse”, rollerball or light pen. The users **202** and **203** operate the keyboard to input alphanumeric text information to the IHS **204**, and the IHS **204** receives such alphanumeric text information from the keyboard. The users **202** and **203** operate the pointing device to input cursor-control information to the IHS **204**, and the IHS **204** receives such cursor-control information from the pointing device.

Referring again to FIG. **1**, in the system **100**, at least one IHS (e.g., a server IHS) of the provider **108** is for receiving information from at least one IHS (e.g., a client IHS) of the customer **102**, in connection with a transactions via the network **110**. For example, the provider **108**’s IHS receives such information input (e.g., “entered”) via a request form (e.g., an “online” application form for an insurance policy) by one or more users (e.g., users **202** and **203**) of the customer **102**’s IHS. For clarity, the following discussion references the provider **108**’s IHS as being a server IHS and the customer **102**’s IHS as being a client IHS.

For receiving information from the client IHS, the server IHS authenticates identification information of multiple users within a common network session. For example, the server IHS receives identification information of a first user (e.g., user **202**), authenticates the identification information, and in response to authenticating the identification information, initiates a network session for receiving the information in connection with a transactions via the network **110**. In one example, the information received is information of the first user. Also, within the network session, the server IHS receives identification information of a second user (e.g., user **203**) and authenticates the identification information. In this way, within the same network session, the server IHS is capable of receiving information of the second user as well as the first user, in connection with the transaction. Moreover, the server IHS is operable to provide (e.g., output), the first user’s information (e.g., information that is in common with the second user’s information) at a later point during the network session. In such example, the first user and the second user are related to one another (e.g., the first user and the second user are associated with one another via a business relationship (e.g., business partnership) and/or in a family relationship (e.g., marriage)). FIG. **3** describes in more detail, such authentication of multiple users within a common session.

FIG. **3** is a flow chart of operations of a process executed by the server IHS according to the illustrative embodiment. The operation begins at a step **310**, where the server IHS self loops until it has received, from the client IHS, identification information (e.g., user name and password) of a first user of the client IHS.

In the illustrative embodiment, the server IHS receives such identification information when the first user “logs in” to a provider (e.g., the provider **108**)’s web site (e.g., web site hosted by the server IHS) by inputting a user name and a password, to conduct a transaction (e.g., inquire about and/or purchase a product) with the provider. At the step **310**, if the server IHS determines that it has received the identification information of the first user, the operation continues to a step **315**.

At the step **315**, in response to the identification information of the first user, the server IHS authenticates the identification information. The server IHS performs such authentication by, for example, validating that it has received a correct combination of known user name and password from the client IHS. After the step **315**, the operation continues to a step **320**.

At the step **320**, in response to authenticating the identification information of the first user, the server IHS initiates a network session (e.g., as hyper-text transfer protocol (“HTTP”) session) for communicating with the client IHS. More specifically, as shown in a step **325**, via the network session, the server IHS receives user information of the first user from the client IHS.

The user information is associated with a transaction conducted through the network **110**. In one example, the provider is a provider of insurance, the transaction is associated with a sale of an insurance policy, and the user information includes information associated with a request (e.g., application, request for a quote) for the insurance policy, such as the first user’s gender, age, address, occupation, and health condition.

In some transactions such as the transaction associated with a sale of an insurance policy, the purchaser (e.g., the first user) is required to provide a signature for a document or a form (e.g., application form, information release authorization form, and contract), attesting to information included therein. With one technique, the purchaser provides such signature electronically by inputting unique identification information (e.g., personal identification (“PIN”) number, password, user name), which is received by the server IHS. In one embodiment, the information is validated by a comparison to a known record of such information. State and federal regulations provide guidelines for the types and the amount of information required for such electronic signatures. After the step **325**, the operation continues to a step **328** where the server IHS outputs to the client IHS, at least a portion of the user information of the first user. After the step **328**, the operation continues to a step **330**. For an explanatory purpose, the following discussion references the transaction as being a transaction involving an insurance policy, although in other examples, the transaction involves any other products and/or services provided by the provider **108**.

At the step **330**, the server IHS receives identification information of the second user (e.g., the first user’s spouse) from the client IHS. In one example, the server IHS receives such identification information if the server IHS receives an indication (e.g., from the client IHS via user input) that the second user as well as the first user wishes to apply for insurance. Also, the server IHS receives the identification information of the second user within the network session. After the step **330**, the operation continues to a step **335**.

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At the step **335**, the server IHS authenticates the identification information of the second user. The server IHS performs such authentication in a manner substantially similar to the authentication performed in the step **315** (discussed in more detail above). The server IHS does not initiate a separate network session in response to authenticating the identification information of the second user. Instead, as shown in a step **340**, the server IHS continues the network session that was initiated in response to authenticating the identification information of the first user.

By authenticating the identification information of both the first user and the second user within the single network session, the server IHS is capable of providing the user information of the first user to the client IHS at a later point during the network session, after the server IHS authenticates the identification information of the second user. In one example, the server IHS receives the user information from the first user and stores such information in session variables. Via the session variables, the user information from the first user is available to the client IHS at a later point during the network session, (e.g., after the server IHS authenticates the identification information of the second user).

Referring again to FIG. 3, after the step **340**, the operation continues to a step **345**. At the step **345**, the server IHS outputs to the client IHS, at least a portion of the user information of the first user and/or the second user. In one example, the portion output is a portion of user information of the first user that is related (e.g., in common) with user information of the second user. For the first user and the second user who are married, such information typically includes at least the home address. The server IHS outputs such common user information to the client IHS as a part of a request form (e.g., an “online” application form) to be completed with the user information of the second user. Accordingly, the server IHS outputs the common information as “prefilled” information on the “online” application form.

As shown in FIG. 3, after the step **345**, the operation continues to a step **350**. Similar to operations of the step **325** discussed in more detail above, at the step **350**, the server IHS receives the user information of the second user, such as various information associated with the transaction including, if appropriate, the second users electronic signature. Thus, within the common network session, the server IHS is operable to authenticate identification information of multiple users (e.g., the first user and the second user). Although in the illustrative embodiment, the first user and the second user are engaged in a common (e.g., joint) transaction, in an alternative embodiment, each of the first user and the second user is engaged in a separate transaction. After the step **355**, the operation continues to a step **355**, where the server IHS terminates the network session.

As discussed above, in the illustrative embodiment, the server IHS receives information from the first user and the second user in connection with a transaction. In one example, the server IHS authenticates identification information from multiple users within a common network session, and receives information such as information for electronic signature for a signature form (e.g., signature card for a bank account) of the multiple users.

Referring again to FIG. 2, the computer-readable medium **212** is a floppy diskette. The computer-readable medium **212** and the IHS **204** are structurally and functionally interrelated with one another as described further below. Each IHS of the illustrative embodiment is structurally and functionally interrelated with a respective computer-readable medium, similar to the manner in which the IHS **204** is structurally and functionally interrelated with the computer-readable medium

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212. In that regard, the computer-readable medium **212** is a representative one of such computer-readable media, including for example but not limited to the storage device **211**.

The computer-readable medium **212** stores (e.g., encodes, or records, or embodies) functional descriptive material (e.g., including but not limited to software (also referred to as computer programs or applications) and data structures). Such functional descriptive material imparts functionality when encoded on the computer-readable medium **212**. Also, such functional descriptive material is structurally and functionally interrelated to the computer-readable medium **212**.

Within such functional descriptive material, data structures define structural and functional interrelationships between such data structures and the computer-readable medium **212** (and other aspects of the IHS **204**, the computing system **200** and the system **100**). Such interrelationships permit the data structures functionality to be realized. Also, within such functional descriptive material, computer programs define structural and functional interrelationships between such computer programs and the computer-readable medium **212** (and other aspects of the IHS **204**, the computing system **200** and the system **100**). Such interrelationships permit the computer programs’ functionality to be realized.

For example, the IHS **204** reads (e.g., accesses or copies) such functional descriptive material from the computer-readable medium **212** into the memory device of the IHS **204**, and the IHS **204** performs its operations (as described elsewhere herein) in response to such material which is stored in the memory device of the IHS **204**. More particularly, the IHS **204** performs the operation of processing a computer application (that is stored, encoded, recorded or embodied on a computer-readable medium) for causing the IHS **204** to perform additional operations (as described elsewhere herein). Accordingly, such functional descriptive material exhibits a functional interrelationship with the way in which IHS **204** executes its processes and performs its operations. Further, the computer-readable medium **212** is an apparatus from which the computer application is accessible by the IHS **204**, and the computer application is processable by the IHS **204** for causing the IHS **204** to perform such additional operations. In addition to reading such functional descriptive material from the computer-readable medium **212**, the IHS **204** is capable of reading such functional descriptive material from (or through) the network **110** which is also a computer-readable medium (or apparatus). Moreover, the memory device of the IHS **204** is itself a computer-readable medium (or apparatus).

Although illustrative embodiments have been shown and described, a wide range of modification, change and substitution is contemplated in the foregoing disclosure and, in some instances, some features of the embodiments may be employed without a corresponding use of other features.

What is claimed is:

1. A method of user authentication comprising:

receiving, by a first information handling system (IHS), identification information of a first user of a second IHS; initiating, by the first IHS, a network session between the first IHS and the second IHS in response to authenticating the identification information of the first user; receiving, during the network session, financial information of the first user from the second IHS and associate the financial information of the first user with a transaction involving the first user and a second user of the second IHS; within the network session, receiving, by the first IHS, identification information of a second user of the second IHS;

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authenticating, by the first IHS, the identification information of the second user; and
pre-fill a form associated with the transaction with information common to the first user and the second user.

2. The method of claim 1, wherein the first user and the second user are related.

3. The method of claim 1, including receiving, by the first IHS, user information of the first user, the user information including information common to the first user and the second user.

4. The method of claim 1, wherein the information common to the first user and the second user is available during the network session after authenticating the identification information of the second user.

5. The method of claim 1, wherein the information is associated with a request.

6. The method of claim 5, wherein the request is for a financial transaction.

7. The method of claim 5, wherein the request includes a form.

8. The method of claim 7, wherein the form is one of an application and a contract.

9. A system for multiple user authentication and common information provision, comprising:

a first information handling system (IHS); and
a second IHS coupled to the first IHS through a network, wherein the first IHS includes a memory and a processor configured to execute instructions stored on the memory to:

receive identification information of a first user of the second IHS;

initiate a network session between the first IHS and the second IHS through the network in response to authenticating the identification information of the first user;

receive, during the network session, financial information of the first user from the second IHS and associate the financial information of the first user with a financial transaction involving the first user and a second user of the second IHS;

receive, during the network session, identification information of the second user; and

authenticate the identification information of the second user;

pre-fill a form associated with the transaction with information common to the first user and the second user.

10. The system of claim 9, wherein the processor is configured to execute instructions stored on the memory to:

receive, during the network session, financial information of the second user from the second IHS, wherein the financial information of the second user includes the information common to the first user and the second user.

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11. The system of claim 9, wherein the processor is configured to execute instructions stored on the memory to: receive, from the second IHS, an inquiry from the first user about the financial transaction.

12. The system of claim 9, wherein the information common to the first user and the second user comprises a home address of the first user and the second user.

13. The system of claim 11, wherein the inquiry from the first user about the financial transaction comprises a request for an insurance policy.

14. A non-transitory computer-readable medium having instructions stored thereon executable by a processor to:

receive identification information of a first user of an IHS, wherein the identification information of the first user is input by the first user;

initiate a network session with the IHS in response to authenticating the identification information of the first user;

receive, during the network session, transaction information of the first user and associate the transaction information of the first user with a transaction for the first user and a second user;

receive, during the network session, identification information of the second user of the IHS, the second user being a party to the transaction with the first user;

authenticate the identification information of the second user;

determine, during the network session, that the second user is involved in the transaction and that the second user and the first user share information common to the first user and the second user;

pre-fill a form with the information common to the first user and the second user; and

output the pre-filled form to the second user of the IHS during the network session.

15. The computer-readable medium of claim 14, wherein the identification information of the second user is input by the second user.

16. The computer-readable medium of claim 14, wherein the instructions include instructions executable to:

receive financial information of the second user during the network session wherein the financial information of the second user includes the information common to the first user and the second user.

17. The computer-readable medium of claim 14, wherein the instructions include instructions executable to initiate the network session to receiving, by the first IHS, information about the first user and the second user from the second IHS.

18. The computer-readable medium of claim 14, wherein the information common to the first user and the second user comprises a home address of the first user and the second user.

19. The computer-readable medium of claim 14, wherein the form comprises a request for an insurance policy.

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